

## REMARKS

Entry of the foregoing amendments is respectfully requested. Claims 1, 14-17, 24, 25 and 27 have been canceled. Claims 2, 5-10, 12, 13, 18, 23, 26, 28 and 30 have been amended. New claims 31-35 have been added. Claims 2-13, 18-23, 26 and 28-35 are pending in the application. Favorable reconsideration and allowance of this application is respectfully requested in light of the foregoing amendments and remarks that follow.

### 1. Claim Rejections 35 U.S.C. Section 112

#### a. Claims 10, 11 and 14-16

In the Office Action the Examiner has rejected claims 10, 11 and 14-16 under 35 U.S.C. Section 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With this response, applicant respectfully traverses the Examiner's rejections to claims 10, 11 and 14-16. More specifically, with this response applicant has amended claims 10 and 11 to remove the term "conventional" as suggested by the Examiner, and has canceled claims 14-16. These amendments were made solely for the purpose more clearly defining the scope of the claims covering applicant's invention and were not made with respect to defining over any of the prior art of record. As a result, applicant believes that claims 10 and 11 are now definite, and respectfully requests that the Examiner withdraw the rejections to claims 10 and 11.

### 2. Rejections Under 35 U.S.C. Section 102(e)

#### a. Claims 1-3, 5, 6, 8-10, 12-14, 16, 17, 19-23 and 25-27

In the Office Action the Examiner has rejected claims 1-3, 5, 6, 8-10, 12-14, 16, 17, 19-23 and 25-27 under 35 U.S.C. Section 102(e) as being clearly anticipated by Azizian U.S. Patent No. 6,599,429 (the '429 patent).

Applicant respectfully traverses the Examiner's rejections to claims 1-3, 5, 6, 8-10, 12-14, 16, 17, 19-23 and 25-27 based on the '429 patent. More specifically, with this response applicant has amended claims 7, 18 and 28 into independent form by incorporating the subject matter of each independent claim from which claim 7, 18 and 28 depended, such that claims 7, 18 and 28 retain their original scope, but are now presented in independent form. The focus of each of claims 7, 18 and 28 now is a filter material and methods for forming and using the material in which the filter media used in forming the filter material is a mesoporous molecular sieve.

In contrast, the '429 patent does not disclose or describe a water treatment filter material that incorporates a mesoporous molecular sieve as the filter media within which an additive is impregnated, as required by each of independent claims 7, 18 and 28. Therefore, in applicant's opinion, the subject matter of claims 7, 18 and 28, as well as dependent claims 2-6 and 8-13, 19-23 and 26, and 29-30, which depend from claims 7, 18 and 28, respectively, is not shown or described by the '429 patent. Therefore, applicant believes that these claims are allowable and respectfully requests that the Examiner withdraw the rejections to claims 1-3, 5, 6, 8-10, 12-14, 16, 17, 19-23 and 25-27 based on the '429 patent.

b. Claims 1-3, 6, 8-17, 22, 23, 25-27 and 30

In the Office Action the Examiner has also rejected claims 1-3, 6, 8-17, 22, 23, 25-27 and 30 under 35 U.S. Section 102(e) as being anticipated by Hughes U.S. Patent No. 6,833,075 (the '075 patent).

Applicant respectfully traverses the Examiner's rejections to claims 1-3, 6, 8-17, 22, 23, 25-27 and 30 based on the '075 reference. More specifically, as discussed previously regarding the rejections based on the '429 patent, independent claims 7, 18 and 28 now each require that the filter material include a filter media formed of mesoporous molecular sieve.

In contrast, the '075 patent does not disclose a filter material or media that is a mesoporous molecular sieve as required by each of claims 7, 18 and 28. Therefore, applicant believes that the subject matter of claims 7, 18 and 28, as well as the subject matter of the claims depending therefrom, is neither shown or described by the '075 patent. Applicant therefore respectfully requests that the Examiner withdraw the rejections to claims 1-3, 6, 8-17, 22, 23, 25-27 and 30 based on the '075 patent.

3. Rejections Under 35 U.S.C. Section 102(b)

a. Claims 1-4, 6, 10, 12-14, 17, 19, 20, 22 and 25-27

In the Office Action the Examiner has also rejected claims 1-4, 6, 10, 12-14, 17, 19, 20, 22 and 25-27 under 35 U.S.C. Section 102(b) as being anticipated by Wasay et al. publication entitled "Removal of Hazardous Anions from Aqueous Solutions by La(III)- and Y(III)-Impregnated Alumina" (the Wasay et al. reference).

Applicant respectfully traverses the Examiner's rejections to claims 1-4, 6, 10, 12-14, 17, 19, 20, 22 and 25-27 based on the Wasay et al. reference. More specifically, as discussed previously, with this response applicant has amended each of claims 7, 18 and 28 into independent form such that these claims now require the filter media to be a mesoporous molecular sieve. Additionally, those claims previously dependent from independent claims 1, 17 and 25 have been amended to depend from newly independent claims 7, 18 and 28, and therefore also require that the filter media be formed of mesoporous molecular sieve.

In contrast, the Wasay et al. reference does not disclose or describe any filter media formed of a mesoporous molecular sieve as required by independent claims 7, 18 and 28. As a result, applicant believes that the subject matter of claims 7, 18 and 28 is neither shown nor described by the Wasay et al. reference, and respectfully requests that the Examiner withdraw the rejections to claims 1-4, 6, 10, 12-14, 17, 19, 20, 22 and 25-27 based on the Wasay et al. reference.

b. Claims 1-4, 6, 8-10, 12-14, 16, 17, 22 and 25-27

In the Office Action the Examiner has also rejected claims 1-4, 6, 8-10, 12-14, 16, 17, 22 and 25-27 under 35 U.S.C. Section 102(b) as being anticipated by Misra et al. U.S. Patent No. 5,603,838 (the '838 patent).

Applicant respectfully traverses the Examiner's rejections to claims 1-4, 6, 8-10, 12-14, 16, 17, 22 and 25-27 based on the '838 patent. More specifically, as discussed previously, with this response applicant has amended each of claims 7, 18 and 28 to independent form such that these claims now each require that the filter media be formed of a mesoporous molecular sieve.

In contrast, the '838 patent does not disclose a filter media which is a mesoporous molecular sieve as required by claims 7, 18 and 28. Therefore, applicant believes that the subject matter of claims 7, 18 and 28, as well as those claims dependent therefrom, is neither shown nor described by the Wasay et al. reference. Applicant respectfully requests that the Examiner withdraw the rejections to claims 1-4, 6, 8-10, 12-14, 16, 17, 22 and 25-27 based on the '838 patent.

4. Rejections Under 35 U.S.C. Section 103(a)

In the Office Action the Examiner has also rejected claims 7, 18, 24, 28 and 29 under 35 U.S.C. Section 103(a) as being unpatentable over the '429 patent in view of applicant's admitted prior art.

Applicant respectfully traverses the Examiner's rejections to claims 7, 18, 24, 28 and 29 based on the '429 patent and applicant's admitted prior art. More specifically, in each of independent claims 7, 18 and 28, filter media formed of a "mesoporous" molecular sieve is required. The term "mesoporous" requires that the molecular sieve have a pore diameter of less than 50 nanometers. Also, the term "mesoporous" requires that the pores in the sieve must be ordered, as opposed to random.

Additionally, while applicant admits the mesoporous molecular sieves have been in existence for some time, these sieves have not previously been impregnated with the specific materials specified in the application for application as filter media to arsenic removal from fluid streams. Further, the preferred mesoporous molecular sieves utilized in the claimed invention are sieves which have been modified to specify the pore diameter within the sieves to between 4 to 10 nanometers without reducing the integrity of the sieve in order to enable additional inorganic material to be incorporated onto the sieve without reducing the integrity of the sieve.

In contrast, there is no teaching or suggestion in the '429 patent to modify the filter media from the alumina-based materials specified in the '429 patent into an ordered mesoporous molecular sieve. More specifically, the '429 patent states in Col. 1, lines 39-47, that the particulate material utilized is preferably porous, and that it can have through pores, closed pores or both. This teaches directly away from the use of an ordered mesoporous molecular sieve as in the claimed invention. Further, the fact that mesoporous molecular sieves exist, as stated by applicant, does not teach or suggest that they can be used in an effective manner to remove arsenic from a fluid stream, or more particularly what form the sieves must take to work in that manner. The disclosure of Choudary et al. U.S. Patent No. 6,797,038 illustrates only that silver or copper components can be impregnated into a mesoporous molecular sieve for effective use in removing ethylene and propylene from gas mixtures, and not that iron, aluminum, titanium or lanthanum compounds can be impregnated into the mesoporous sieve for arsenic removal from a fluid stream. The ability of the sieve to function with impregnated silver and copper in removing short chain hydrocarbons does not teach that other metals can be similarly impregnated for use in removing ionic components of a fluid stream, in applicant's opinion, due to the highly different nature of the processes and conditions involved.

Therefore, in applicant's opinion, there is no teaching or suggestion in the '429 patent to substitute a mesoporous molecular sieve for the alumina-based component disclosed as the filter media in the '429 patent. As a result, applicant respectfully requests that the Examiner withdraw the rejections to claims 7, 18, 24, 28 and 29.

#### 5. New Claims 31-35

Lastly, applicant has added new claims 31-35 with this response. New claim 31 further defines the method of claim 28 by stating that the mesoporous molecular sieve has an average pore size of between about 4nm and about 10nm. New claim 32 further specifies the method of claim 28 by stating that the filter media is placed within a water stream. New claims 33-35 each further specify the method of claim 28 by stating that the additive mixed into the filter media is an aluminum, lanthanum, or titanium compound.

In applicant's opinion, each of these new claims are adequately supported by the specification, and each define patentable subject matter because each claim recites a limitation that is not anticipated or rendered obvious by the cited prior art, and because each of these claims depends from claim 28 which is believed to be allowable for the reasons stated previously.

### **CONCLUSION**

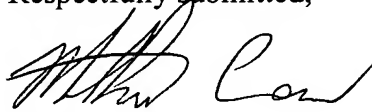
It is submitted that claims 2-13, 18-23, 26 and 28-35 are in compliance with 35 U.S.C. Sections 112, 102 and 103 in each defined patentable subject matter. A Notice of Allowance is therefore respectfully requested.

Enclosed is a check for \$60.00, which includes the government filing fee by a *small* entity for a one-month extension of time, which applicant hereby requests. No fees are believed to be payable with this communication. Nevertheless, should the Examiner consider any other fees to be payable in conjunction with this or any future communication, the Director is authorized to direct payment of such fees, or credit any overpayment to Deposit Account No. 50-1170.

Serial No. 10/664,300 to Parker et al.  
Art Unit 1724 – Attorney Docket 282.028  
Response to Office Action March 9, 2005  
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The Examiner is invited to contact the undersigned by telephone if it would help expedite the prosecution and allowance of this application.

Respectfully submitted,



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